

And so died John Williamson, on the 17th of June, 1884, and in the 46th year of his age, "his last conscious hours passed in the woods he had loved so well," writes a near and dear friend, adding that the banks of the stream and hillsides were covered with ferns, and that "I know that if he could have had his choice he would have preferred to die so, if only his dear old mother could have been by his side."

Williamson's devotion to his mother was chivalrous. He always spoke of her in terms of the deepest reverence and endearment, and if his last conscious thought could have been interpreted, it must have been for her who by his death would be left alone in her old age without a single relative in this country, though he would have known, too, that loving friends would care for and protect her.

His remains were taken to Louisville, and amid graceful tributes of flowers and ferns the artist-botanist, surrounded by sorrowing friends, was borne tenderly to his last earthly resting-place in Cave Hill Cemetery.

Farewell, dear friend! yet not to thee farewell.
I know that thou art living, breathing still
In every flower and fern by rock or rill;
And thy freed spirit evermore will haunt
The woods and streams where all thy loved ferns dwell.
I loved thee for thy virtues and thine art,
And here in reverence pay this tribute of my heart.

MEDFORD, MASS., July, 1884.

Notes on the Flora of W. Dakota and E. Montana, Adjacent to the Northern Pacific Railroad*—I I.

BY JOHN B. LEIBERG.

The *Compositæ*, as might be expected, were numerously represented. Species of *Liatris*, *Solidago* and *Bigelovia* were abundant. Asters were rather rare. *Helianthus lenticularis*, Dougl., (more correctly known as *H. annuus*, L., since it has been shown to be the original of the common cultivated sunflower), was the only species of this extensive genus occurring at all plentifully west of the Missouri. *Lepachys pinnata*, Torr. & Gr., was wholly replaced by *L. columnaris*, Torr. & Gr., and its variety *Tagetes*, Gray. It is curious to notice the

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gradual transition to *L. pinnata*, as the Red river valley is approached. A number of species of *Artemisia* were noticed; among others *A. tridentata*, Nutt. (sage-brush), but not extending eastward much beyond Pyramid Park. *Senecio lugens*, Rich., var. *Hookeri*, Eaton, was common everywhere. Species of *Hieracium* peculiar to the far west were found; also *Grindelia squarrosa*, Dunal., which extends east into the edge of Minnesota. *Troximon cuspidatum*, Pursh, common in Minnesota, was replaced by *T. glaucum*, Nutt.; and *Iva xanthiifolia*, Nutt., by *I. axillaris*, Pursh. Two species of *Gaillardia*, *G. aristata*, Pursh, and an undetermined one, were collected. *Antennaria* was represented by *A. dioica*, Gærtn., a rather pretty little plant.

Aphyllon fasciculatum, Gray, of the order *Orobanchaceæ*, was very common on the dry hill-sides, parasitic on the roots of various species of *Artemisia*.

Numerous species of *Pentstemon* and *Castilleia* made up the bulk of the *Scrophulariaceæ*.

Only one of the order *Labiata* was collected west of the Missouri; this was a species of *Hedeoma*.

Three species of *Echinosperrum*, one *Mertensia*, and three species of *Eritrichium*, were noted as representing the *Borraginaceæ*.

Phlox cæspitosa, Nutt., is first found in going westward near the Missouri river, but only on the summit of the highest and stoniest hills; farther west it covers the ground nearly everywhere.

Asclepias Cornuti, Decaisne, was supplanted by *A. speciosa*, Torr., a closely allied species, rather more handsome though not so tall and robust.

Among the rarer *Chenopodiaceæ*, I collected *Monolepis chenopodioides*, Moq., *Eurotia lanata*, Moq., *Sarcobatus vermiculatus*, Torr. (this only in Pyramid Park), *Salicornia herbacea*, L., and three or four species of *Obione*.

Among the *Polygonaceæ*, *Rumex venosus*, Pursh, and several species of *Eriogonum* were of frequent occurrence.

Shepherdia argentea, Nutt., and *S. Canadensis*, Nutt., commonly called "buffalo berries," and *Elæagnus argentea*, Pursh, the silver-berry, abounded along the streams.

A low trailing *Juniperus* was exceedingly common west of the Missouri, growing everywhere upon the sides of the dry rocky buttes.

Allium reticulatum, Fraser, two species of *Zygadenus*, *Smilacina stellata*, Desf., and *Calochortus Gunnisoni*, Watson, this last not extending east of Pyramid Park, and *Yucca angustifolia*, Pursh, make up the list of *Liliaceæ* noted in western Dakota.

Scirpus maritimus, L., was common around alkaline ponds, together with several undetermined species of *Eleocharis*. Numerous *Carices* were observed, mostly differing from Minnesota species.

The *Gramineæ* were much more sparingly represented than one would suppose to be the case. West of the Missouri fully half of the grass consisted of a single species, *Kæleria cristata*, Pers. The remaining half was divided between a dozen other species, such as *Aristida purpurea*, Nutt., an undetermined *Calamagrostis* near *C. stricta*, Trin., *Stipa Mongolica*, Turcz., and *S. viridula*, Trin., *Spartina gracilis*, Trin., *Brizopyrum spicatum*, Hook., *Bouteloua hirsuta*, Lagasca, and *B. oligostachya*, Torr., which two last commonly pass by the name of "buffalo grass," *Munroa squarrosa*, Torr., and *Buchloe dactyloides*, Engelm., the true buffalo grass, the last only occurring in scattered patches here and there. Several species of *Poa*, *Beckmannia eruceiformis*, Host., *Schedonnardus Texanus*, Steud., *Eriocoma cuspidata*, Nutt., and several species of *Triticum*, complete the list of grasses collected.

Only two species of ferns were observed, a *Woodsia* and *Pellaea atropurpurea*, Link., the latter growing in the crevices of the rocky ledges on the summit of the buttes. A few mosses were seen, and two species of lichens.

The arboreal vegetation was, as might be supposed, very scanty. Aside from the timber on the Missouri river bottoms, only a few stunted willows, cottonwood, box-elder and June berry were found scattered at intervals along the streams.

A curious feature of the country west of the Missouri, beyond the limit of the drift, was the great number of fossil tree stumps protruding through the sod. Hundreds could be counted in many places, and in some localities, especially in Pyramid Park, the fossil trunks were found where they had fallen, almost whole and but little the worse for the ravages of time. There is no doubt that during the Cretaceous and Tertiary periods extensive forests flourished in this region; and to judge from the size of the stumps remaining, some of the trees must have been of immense size. Many stumps were seen ten feet or more in diameter, and I heard of others still larger.

This region will yet prove a mine of wealth to the botanist studying our fossil flora. Fossil leaves in great abundance occur everywhere in the Tertiary sandstones and soft Cretaceous clays. In some places the clay beds were originally underlaid by seams of lignite, which have been burned, baking the clay above into a kind of brown, red, or yellow brick, which shows perfectly

the forms and venation of these fossil leaves. The region is well worth the time and attention of working botanists, both in recent and fossil botany; and will doubtless ere long receive its due share of exploration and study, since it has become so easy of access.

GENERAL NOTES.

Botany and the American Association.—The Minneapolis meeting of the American Association for the Advancement of Science last year gave an impetus to the botanical interests in the Association, which promises to yield good results in bringing botanists more into each other's society. A Botanical Club was formed, and a committee appointed to arrange for the meeting in Philadelphia. This committee began its labors in April, and has since steadily endeavored to do what it could for the interests of the botanical members.

The following announcements can now be made for the Philadelphia meeting: The Association opens on Thursday morning, September 4th. During Thursday and Friday the botanical headquarters will be at the Academy of Natural Sciences, corner of 19th and Race Streets, where a committee will be in attendance to receive and introduce all members as they report themselves, to welcome them to the privileges of the Library and Herbarium of the Academy, and as far as possible to promote acquaintance and good fellowship. This committee will also be in charge of the registry book of the Club, in which it is hoped every member of the Association interested in botany will register as soon as possible after arrival. This is the only requisite to becoming a member of the Club, entitled to all the privileges of the same.

The Association will devote Saturday, September 6th, to excursions. The special botanical excursion for this day will be to the pine barrens of New Jersey, the richness of whose flora has become quite proverbial. Those interested in cryptogamic plants will doubtless have the pleasure of Mr. J. B. Ellis' leadership, whose extensive knowledge of fungi in particular, and thorough acquaintance with the region, will be of great service. Those more inclined to phanerogamic botany will find no lack of leaders. After devoting sufficient time to botanizing the general excursion of the Association to the seaside will be overtaken, and the remainder of the day passed in connection with it. There will also be excursions by the Association at the same time to the Delaware Water Gap, and to the anthracite regions, which those preferring can accompany.

Monday evening, September 8th, is the regular monthly meeting of the Botanical Section of the Philadelphia Academy of Sciences. The Section extends an invitation to the Botanical Club of the Association, the Torrey Botanical Club, of New York City, and to other visiting botanists to be present. The usual exercises will be abbreviated and supplemented by short addresses from eminent botanists. It is anticipated that Mr. John Ball, of England, who is now traveling in the western part of the United States, will be willing to give